

AMENDMENTS TO THE CLAIMS:

The following listing of claims replaces all prior listings, and all prior versions, of claims in the above-identified application.

LISTING OF CLAIMS:

1. (Currently amended) A method for cleaning a plasma processing apparatus having a plasma generating means for generating plasma within a processing chamber, a high-frequency power applying means for applying high-frequency power to an object to be processed, a processing chamber to which an evacuating device is connected and which has its interior evacuated, and a gas supply device for the processing chamber, said method comprising:

mounting a Si wafer on an electrode for holding the object to be processed, while the Si wafer is mounted on the electrode, introducing a mixed gas of hydrobromic gas and chlorine gas into the processing chamber, and generating a plasma from the hydrobromic gas and chlorine gas while supplying Si atoms to the plasma, the Si atoms being supplied to the plasma by applying the high-frequency power to the Si wafer, and

removing an aluminum fluoride deposit adhered to the interior of the processing chamber by reaction between the aluminum fluoride deposit and the plasma containing Si atoms by applying the high frequency power to the Si wafer.

2. (Cancelled).

3. (Currently amended) A method for cleaning a plasma processing apparatus for generating a plasma in a vacuum container of the plasma processing

apparatus and plasma processing a substrate placed on a substrate holder disposed within the vacuum container, said method comprising:

providing a period for cleaning an aluminum fluoride deposit in the vacuum container by generating plasma containing chlorine gas and hydrobromic gas and additionally ~~an element that reacts with fluorine~~ Si atoms to create a gas-phase reaction product either each time after plasma processing a wafer or plural wafers or before and after plasma processing.

4. – 7. (Cancelled).

8. (Currently amended) The method for cleaning a plasma processing apparatus according to claim 3, further comprising:

placing a Si wafer, with no patterns printed thereon, on the substrate holder when the plasma including chlorine gas and hydrobromic gas is discharged; and applying high-frequency power to the Si wafer through the substrate holder, to supply the Si atoms to the plasma.

9. (Currently amended) The method for cleaning a plasma processing apparatus according to claim 3, further comprising:

placing a Si wafer, with no patterns printed thereon, on the substrate holder when the plasma including chlorine gas and hydrobromic gas is discharged; and applying high-frequency power to the Si wafer through the substrate holder, wherein the high-frequency power being applied corresponds to a frequency of

400 kHz and is equal to or greater than 0.11 W per unit area (1 cm²) of the Si wafer,
to supply the Si atoms to the plasma.

10.-13. (Cancelled).

14. (Currently amended) The method for cleaning a plasma processing apparatus according to claim 3, further comprising:

providing a period for generating plasma containing SF₆ prior to said period for generating the plasma with the chlorine gas and hydrobromic gas.

15. (Cancelled).

16. (Currently amended) The method for cleaning a plasma processing apparatus according to claim 3, wherein a portion of material constituting the vacuum container includes Si, from which Si atoms are supplied to the plasma, and cleaning the aluminum fluoride deposit in the vacuum container is performed using the plasma containing the chlorine gas and the hydrobromic gas and additionally the Si atoms.

17. (Currently amended) The method for cleaning a plasma processing apparatus according to claim 3, wherein the plasma containing chlorine gas and hydrobromic gas, used in the cleaning processing, additionally contains SiCl₄ gas so as to provide the Si atoms contained in the plasma.